



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,651	07/28/2003	Joseph W. Harris	JWH-59US	4424
26875 7590 04/08/2008 WOOD, HERRON & EVANS, LLP 2700 CAREW TOWER 441 VINE STREET CINCINNATI, OH 45202				
EXAMINER				
IP, SIKYIN				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
04/08/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/628,651

**Applicant(s)**

HARRIS, JOSEPH W.

**Examiner**

Sikyin Ip

**Art Unit**

1793

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1.5-7.22.25 and 35-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1.5-7.22.25 and 35-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5-7, 22, 25 and 35-44 are rejected under 35 U.S.C. § 103 as being unpatentable over PL 149319 in view of CN 1060052. (References are cited in parent application).

PL 149319 in the abstract discloses the features including the claimed solid brazing components – Cu alloy powder intermediate product. The difference between PL 149319 and the claims are as follows: PL 149319 does not disclose the claimed Mn, liquidus, solidus, thermal arrest temperatures, and forms of the brazing component. However, the claimed Mn content reads on zero which suggests Mn can be eliminated from the brazing alloy. The claimed liquidus, solidus, and thermal arrest temperatures

Art Unit: 1793

are material properties which would have been inherently possessed by the material disclosed by PL 149319. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product.

In re Best, 195 USPQ, 430 and MPEP § 2112.01.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

With respect to the form of the brazing component, CN 1060052 discloses brazing solder component could be formed into rods, ingots, strips, or powder. Therefore, it is contemplated within ambit of ordinary skill artisan to form the brazing component into form suitable for the brazing application such as a rod without paste and carrier. It is well settled that the form of reactants is believed mere a choice between well known forms of such substances. In the absence of evidence of some unobvious

aspect of their selection, use of those substances would seem to add nothing of patentable significance to the instant claims. In re Austin, et al., 149 USPQ 685, 688.

With respect to the recited "fluxless" limitation in claims 39-42 that PL 149319 teaches to add paste to lower the brazing temperature. In view of said teaching in PL 149319 that it is contemplated within ambit of ordinary skill artisan to eliminate paste when lower brazing temperature is not needed. It is well settled that omission of an element (here paste and carrier) and its function where not needed is obvious. Ex parte Rainu, 168 USPQ 375 (PTO Bd. of App. 1969) and In re Karlson, 136 USPQ 184 (CCPA 1963). Moreover, CN 1060052 teaches solder/filler Cu alloy similar to PL 149319 can be formed as rods.

Claims 39-42 are further rejected under 35 U.S.C. 103(a) as being unpatentable over PL 149319 as applied to claims above, and further in view of USP 3428442 to Yurasko or USP 3674471 to Joseph.

PL 149319 discloses the Cu based brazing powder and carrier as set forth in the rejection above except for using the Cu based brazing alloy powder without carrier. However, Yurasko teaches Cu based alloy powder (col. 2, lines 10-18) can be used in flame spraying (col. 1, lines 14-38). Joseph teaches Cu based alloy can used in cast rod or powder form (col. 1, line 55 to col. 2, line 10) for flame spraying (col. 1, lines 30-32) in the same field of endeavor or the analogous metallurgical art. It is well settled that the form of reactants (here brazing powder) is believed mere a choice between well known forms of such substances. Use of those substances would add nothing of patentable significance to the instant claims. In re Austin, et al., 149 USPQ 685, 688.

Claims 35-42 are rejected under 35 U.S.C. § 103 as being unpatentable over EP 465861 in view of CN 1060052. (References are cited in parent application).

Claims 22, 25, 35-42, and 44 are rejected under 35 U.S.C. § 103 as being unpatentable over SU 1706816 or USP 3428442 to Yurasko in view of CN 1060052. (References are cited in parent application).

EP 465861 (abstract), SU 1706816 (abstract), or Yurasko (col. 2, lines 10-18) discloses the features including the claimed solid brazing components – Cu alloy solder. The difference between and the claims are as follows: EP 465861 or SU 1706816 does not disclose the claimed liquidus, solidus, thermal arrest temperatures, and forms of the brazing component. However, the claimed liquidus, solidus, and thermal arrest temperatures are material properties which would have been inherently possessed by the material disclosed by cited references. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product.

In re Best, 195 USPQ, 430 and MPEP § 2112.01.

With respect to the form of the brazing component, CN 1060052 discloses brazing solder component could be formed into rods, ingots, strips, or powder. Therefore, it is contemplated within ambit of ordinary skill artisan to form the brazing component into form suitable for the brazing application such as a rod without paste and carrier. It is well settled that the form of reactants is believed mere a choice between well known forms of such substances. In the absence of evidence of some unobvious

aspect of their selection, use of those substances would seem to add nothing of patentable significance to the instant claims. In re Austin, et al., 149 USPQ 685, 688.

Claims 22, 25, 35-38, and 44 are rejected under 35 U.S.C. § 103 as being unpatentable over CN 1060052. (References are cited in parent application).

Claims 1, 5, 22, and 43 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 3674471 to Joseph.

CN 1060052 (abstract) or Joseph (col. 1, line 55 to col. 2, line 3) discloses the features including the claimed solid brazing components and structures. The difference between cited references and the claims are as follows: Cited references do not disclose the claimed liquidus, solidus, and thermal arrest temperatures. However, the claimed liquidus, solidus, and thermal arrest temperatures are material properties which would have been inherently possessed by the material disclosed by cited reference. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product. In re Best, 195 USPQ, 430 and MPEP § 2112.01.

### ***Response to Arguments***

Applicant's declarations and arguments filed December 27, 2007 have been fully considered but they are not persuasive.

Applicant's argument in paragraph bridging pages 2-3 of instant remarks is noted. The PL 149319 clearly discloses that the paste is made up of carrier and Cu

Art Unit: 1793

alloy powder. It is known in the art of cited references that Cu alloy powder is brazing powder which has composition overlapped the claimed brazing Cu alloy.

Applicant's argument with respect to "alloy A" is noted. But, it is an example for cited reference. It is for illustration not for limitation. In said declaration, applicant failed to show the claimed brazing composition is critical and possesses unexpected result.

Example is referred to as "Alloy A." Alloy A as set forth in the Polish Abstract was tested, and no braze could be formed at brazing temperatures below 973K. The temperature was raised above 973K and the Brazing Paste did not begin to melt and flow until well above 1500°F (See First Affidavit of Robert Henson). ~~Alloy B was also tested, its composition being varied from~~

Applicant argues that " ~~Alloy B was also tested, its composition being varied from~~ "

But, it is found inconsistent with Table A submitted by applicant that Alloy A has liquidus

TABLE A

Alloy	P	Se	Si	Ag	Sb	Cu	Exptl. T	Major Thermal Anomaly	Subline T	Comments
A	0.1	28	0.5	0.1	15	60.2	Below 1200	None	5040	Unlikely to overlap of Polish Abstract
B	2	4	0.5	0.1	25	26.1	Below 1600	None	4045	Within Polish ranges, if correct below also need range

temperature at 1284 °F.

Applicant's argument with respect to Alloys B-E is noted. But, there is no factual evidence that the claimed brazing alloy composition from end-point to end-point has a liquidus temperature less than 1410°F. Examiner also reiterates the response set forth in pages 7-9 of office action mailed May 18, 2006.

Applicant's argument in page 5 of instant remarks is noted. Examiner reiterates the response set forth in page 9 of office action mailed May 18, 2006.

Of these 14 examples, only 1 example (Alloy F) was considered to be interpretable for producing a commercially viable braze. The reason for the failure of Alloy F was that, despite compliance with the ranges recited in claim 1, the combined Tin and Antimony content exceeds 10%, which

Applicant argues that " ~~is taught in the specification to be important. There is one skilled in the art guided by the~~ " But, none

of independent claims cited Sn+Sb limit.



Art Unit: 1793

just above (1150) the claimed range, respectively. As stated in the second affidavit of Robert Henson for Alloy B:

*While the alloy was calculated into rod for experimental purposes, based upon my experience, it could not be powdered to create this alloy, as a commercial basis due to a very slow rim speed (well below commercial BCuP alloys) and the high potential for hot shorting. The alloy has a very wide brazing temperature range (1025°F-1669°F), no major thermal arrest, and a very high liquidus temperature. Therefore, the brazing temperature for this alloy is prohibitively high, being at or near 1669°F. In addition,* " and

Applicant argues " "

As stated in the second affidavit of Robert Henson for Alloy H-1:

*The alloy could not be extruded into rod or wire form. Lowering the tin and antimony content did not help--the high phosphorus content proved to be disastrous. The alloy had an even higher liquidus and the solidus only appeared to be identified. Alloy has a very wide brazing temperature range (1065°F-1620°F), and no major thermal arrest. Therefore, the brazing temperature for this alloy is prohibitively high, being at or* " But, the liquidus

temperature meets the claimed liquidus temperature.

Applicant's argument in page 7 is noted. But, the claimed "about 9 wt.%" is "11 wt.%" and there is not an example showing 9 wt.% for claimed properties.

~~composition are different than brazing compositions.~~ It is well known that solder alloys are

Applicant argues that " "more malleable than braze alloys, such that solders are more easily formed into solid shapes. " "

But, solder alloys cannot be used for brazing? Moreover, there is no tensile properties limitation in any claims. The solder alloys of CN is substantially same as claimed brazing alloy (instant claim 1, for example).

Applicant's argument with respect to "consisting essentially of" is noted. But, applicant did not show any essential element from CN would affect the characteristic of claimed brazing alloy.

~~is noted that the rejection of claim 1 over the Polish Abstract in view of the CN Abstract should be withdrawn.~~

#### Claim 5

*The component of claim 1 wherein the brazing component has a liquidus temperature less than about 1410 °F and a solidus temperature less than about 1100 °F.*

Applicant argues that " "

" But,

Table A, submitted by applicant has shown that alloy A has liquidus temperature 1284 (see pasted above).

Applicant's argument with respect to claim 7 is noted. But, Table A shows alloys C-D have thermal arrest in the claimed range although the compositions are outside claimed ranges.

Applicant's argument with respect to claim 43 is noted. But, alloy A has Sn+Sb over 10wt.%. And it is unclear from alloy F alone that the Sn+Sb is the factor since applicant failed to keep other elements' contents same.

Applicant's argument in pages 14-27 of instant remarks is noted. But, the tests provided by applicant failed to show claimed brazing alloy compositions are critical because applicant failed to show claimed composition range(s) is critical from end-point to end-point. Comparison must be done under identical condition except for the novel features of the invention. In re Brown, 173 USPQ 685 and In re Chapman, 148 USPQ 711. The showing of unexpected results must be occurred over the entire claimed range. In re Clemens, 622 F.2d 1029, 206 USPQ 289, 296 (CCPA 1980). The scope of the showing must be commensurate with the scope of the claims. MPEP § 716.02(d), In re Tiffin, 448 F.2d 791, 792 (Fed. Cir. 1971), In re Coleman, 205 USPQ 1172, In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983), and In re Greenfield, 197 USPQ 227.

As presented above, the Chinese Abstract is a solder composition, which is not combinable with a brazing composition. ~~There is simply no teaching or suggestion that a brazing~~  
Applicant argues that "

But, examiner reiterates the response above that the solder alloy composition of Chinese abstract is substantially same as claimed brazing alloy composition.

Applicant's argument with respect to SU 1706816 is noted. It is affect the properties of applicant's brazing alloy not reference alloy.

Applicant's argument in page 29 of instant remarks with respect to Chinese abstract is noted. Examiner reiterates response above.

Applicant's argument in paragraph bridging pages 8-9 of instant remarks is noted. But, brazing powder composition of PL 149319 is known in the art of cited references. Brazing powder can be flame spraying without carrier/flux (see USP 3674471, col. 1, line 30 to col. 2, line 3 and USP 3428442, col. 1, line 13 to col. 2, line 20).

Applicant's argument with respect to Joseph is noted. But, alloy before flame spraying is not solid?

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Applicant is reminded that when amendment and/or revision is required, applicant should therefore provide a concise explanation and support with page and line

Art Unit: 1793

number in the specification for any amendments made to the disclosure. See 37 C.F.R. Part §41.37 (c)(1)(v).

## Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Sikyin Ip/  
Primary Examiner, Art Unit 1793

March 31, 2008

**Application Number****Application/Control No.**

10/628,651

**Applicant(s)/Patent under  
Reexamination**

HARRIS, JOSEPH W.

**Examiner**

Sikyin Ip

**Art Unit**

1793